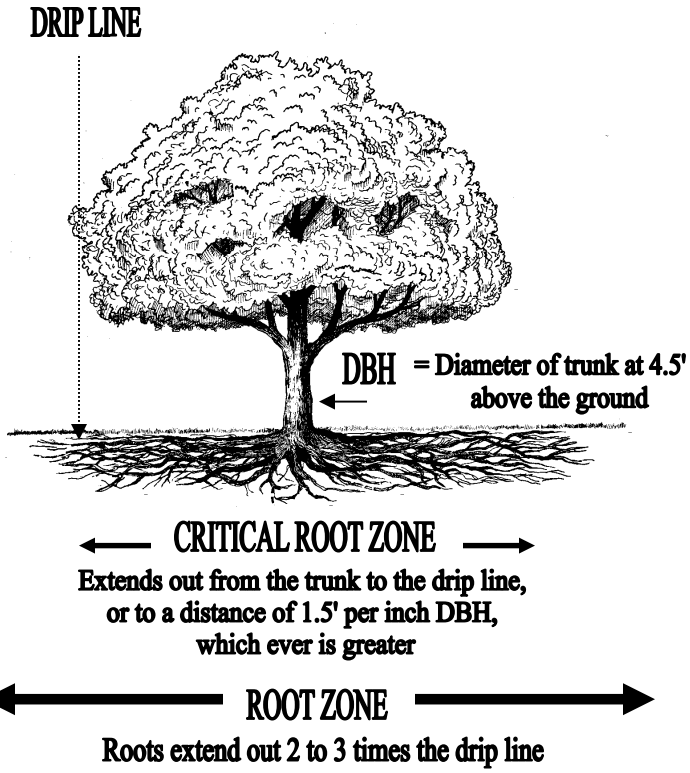
CITY OF FALLS CHURCH

Tree Preservation and Replacement Guide for Development and /or Redevelopment on Single Family Residential Lots



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Urban Forestry Checklist for Grading Plans

Preliminary Vegetative Survey

Chart listing existing trees with comments	YES ☐	NO ☐	_____
All trees 2" DBH and greater listed	YES ☐	NO ☐	_____
All Shrubs 5' in height and greater listed	YES ☐	NO ☐	_____
All trees & shrubs identified correctly by an ISA Certified Arborist (include ISA #)	YES ☐	NO ☐	_____

Existing Tree Preservation Plan

Adequate Tree Protection Fence locations shown	YES ☐	NO ☐	_____
Root Pruning locations shown	YES ☐	NO ☐	_____
Other Tree Preservation Measures shown	YES ☐	NO ☐	_____
Critical root zone shown	YES ☐	NO ☐	_____
City of Falls Church "Tree Preservation Standards and Specifications"	YES ☐	NO ☐	_____
"Arborist Notification and Verification"	YES ☐	NO ☐	_____
Root Protection Pad detail (if needed)	YES ☐	NO ☐	_____

Canopy coverage calculations

Accurate canopy coverage calculations	YES ☐	NO ☐	_____
Undesirable species included in coverage	YES ☐	NO ☐	_____
Offsite trees used in coverage	YES ☐	NO ☐	_____
Declining tree(s) used in coverage	YES ☐	NO ☐	_____

Landscape Revegetation Plan

Chart listing trees to be planted	YES ☐	NO ☐	_____
City of Falls Church "Tree Planting Specification and Details"	YES ☐	NO ☐	_____
City of Falls Church tree planting detail	YES ☐	NO ☐	_____
Street Tree Plantings shown	YES ☐	NO ☐	_____
Utilities impacting tree preservation areas	YES ☐	NO ☐	_____

INSTRUCTIONS FOR PRESERVING AND REPLACING VEGETATION THROUGH OUT THE DEVELOPMENT PROCESS*

Grading plan applicants shall submit the following requirements pursuant to Section 35, and Section 48-1134 of City Code

SUBMISSION REQUIREMENTS
***FOR COMPLETE INFORMATION SEE ORDINANCES**

❖ All development, redevelopment or land disturbance subject to section 35-17 shall include a **Landscape Conservation Plan** as part of plan review and approval. No clearing or grading of any lot shall be permitted without an approved **Landscape Conservation Plan**. This plan shall be a scaled drawing including the following components:

1. A ***Preliminary Vegetative Survey*** of all existing vegetation on the site including trees measuring at least two (2) inches in diameter at breast height (DBH) and shrubs that are greater than five (5) feet in height.

✓ A chart shall be provided showing common and botanical name, size, condition, life expectancy, and required preservation measures of all woody vegetation.

✓ All trees shall be identified by an International Society of Arboriculture (ISA) certified arborist. Include the ISA Certified Arborist's certification number on the grading plan.

Tree #	Common Name / Botanical Name	DBH	Condition	Life Expec.	Preservation Measures
1*	Willow oak *Quercus phellos*	35"	Good	> 10	To be saved; install fencing, Root prune at LOC, mulch
2	Bradford pear *Pyrus calleryana*	10"	Fair	< 10	Remove – non desirable species, short lived. Not included in tree canopy coverage requirement.
3	Silver maple *Acer saccharinum*	42"	Poor	< 10	Remove – in building envelope
4	Red maple *Acer rubrum*	4"	Good	< 10	To be saved

Data Collected By: John Smith ISA Certified Arborist # PD-065
Tree numbers match a corresponding number on the plan, showing the tree locations on the property.

2. An ***Existing Vegetation Preservation Plan*** that shows land disturbing and any other activities during the construction process that could negatively impact vegetation.

✓ Locations of tree preservation fencing, root pruning and other required tree preservation measures shall be shown on the plan.

✓ Locations of the critical root zone (CRZ) of any vegetation shown on the plan or on adjacent properties, including City right-of-ways (street trees), where the CRZ extends onto the site.

✓ The City of Falls Church "Tree Preservation Standards and Specifications" shall be included on the plan.

3. A ***Landscape Revegetation Plan*** that shall illustrate the locations of any required vegetation. This applies on lots where the 20% minimum tree canopy cover can not be met through preserving existing tree canopy.

✓ A chart shall be provided showing common and botanical name, size, quantity, root condition and tree canopy coverage provide by each tree.

✓ The City of Falls Church "Tree Planting Specifications and Details" shall be included on the plan.

❖ **Tree Canopy Coverage Calculations Pre and Post Development** shall be shown on the plan in chart form. Canopy coverage is the area beneath the drip line of the **trees on the lot**. For onsite trees if the canopy extends into a neighboring property credit for that portion of the canopy may also be taken. Canopy coverage from the following types of vegetation **can not** be included in the calculations:

- Vegetation that is not preserved in accordance with the Landscape Conservation Plan.
- Vegetation that is not desirable and has a life expectancy less than ten (10) years.
- Vegetation that is included in the "Vegetation Not Recommended to Plant or Preserve" list.
- Vegetation that is not native to the Mid-Atlantic region.

❖ **Planting of Street Trees** is required in conjunction with all grading plans. Trees shall be located within the City right-of-way if right-of-way is greater than 8 feet **or** within 15 feet of the street if right-of-way is less than 8 feet. Trees should be planted every 25 feet along all right-of-way where resonable. Street tree(s) apply to canopy cover requirements. The species shall be determined in consultation with the City Arborist.

❖ **Bonding of Replacement Vegetation** is required prior to the grading plan sign off and approval. The bond is held for one (1) year from the date of the planting of the vegetation after a successful inspection by the City Arborist. The cost of any replacement vegetation that can not be planted on the lot, due to physical constraints, shall be placed in the **Tree Canopy Fund**. This fund shall be used to plant vegetation on both private and public property.

❖ **Verification of Tree Preservation Measures** is required prior to the issuance of any permits, including demolition and building permits, associated with the grading plan. This means that all tree work and associated tree preservation measures must be installed prior to the entrance of any equipment to the lot.

❖ **Violation of Approved Plans**

1. **Stop Work Orders.** In the event that any construction or work is performed in violation of the approved **Landscape Conservation Plan**, the City Arborist may issue a written notice to the responsible party to **stop work**. If the permit holder fails to comply with the conditions of the stop work order, they may be subject to revocation of permits and/or any cash bonds held by the City.
2. **Mitigation Plan.** In the event that the violation of the approved **Landscape Conservation Plan** was an encroachment or evidence of an encroachment into a tree preservation area, the applicant shall submit a Mitigation Plan subject to the approval of the City Arborist. This plan shall list remedial measures and the time within which such measures shall be completed by the applicant to ensure the continued preservation of the existing trees. This may include, but is not limited to, pruning, vertical mulching, and aerating. Bonding of the existing vegetation may be required by the City Arborist.

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HOW TO CALCULATE TREE CANOPY COVERAGE

- **All lots under going development or redevelopment must provide for twenty (20) percent tree canopy coverage after ten (10) years. Tree canopy coverage is the sum total of preserved vegetation and replacement vegetation.**

1. To calculate how much canopy coverage is required, multiple the lot size by 20%.

   i.e. A 10,000 sq. ft. lot would require 2,000 sq. ft. of canopy coverage

2. Next, calculate how much preserved canopy coverage is all ready present **on the lot** and multiply this by 1.25. This additional "credit" is to encourage the preservation of existing vegetation.

   i.e. 1000 sq. ft. of preserved vegetation would be credited an additional 250 sq. ft. for a total of **1250 sq. ft**. of preserved vegetation.

3. If this amount is greater than the required 20% canopy coverage number (i.e. greater than 2,000 sq. ft.).

   If less than …… STOP HERE!

4. Subtract the existing tree canopy coverage number (including "credit") from the total amount required.

   i.e. A 10,000 sq.ft. lot that has 1250 sq. ft. of existing canopy coverage would require an additional 750 sq.ft. of canopy coverage.

5. Determine how many trees will total 750 sq. ft. from the attached list "Recommended Trees & 10 – Year Canopy Coverage" (Attachment #2). Include any additional canopy coverage "credits" that may apply such as the following:

- ***Best Management Practice (BMP)*** - 25% for trees planted in rain gardens or bio retention areas.
- ***Energy Conservation***- 25% for deciduous trees planted to provide shade to the Southern side of the house. (Southeast, South & Southwest side of the house)
- ***Utility Line Compatible***- 125 sq. ft. per tree for small appropriate trees planted under utility lines when shade trees can not be planted else where on site.
- ***Native Plant Species*** – 25% for trees that are native and are less susceptible to pest and disease and provide habitat and food for wildlife.
- ***Species Diversity***- 10% for replanting plans that have no more than 25% of one type of tree.

i.e. 750 sq.ft. of canopy coverage can be met by planting the following trees:

1 - Red Bud	1 x 100 = 100	"Credits" 25% Native plant Species = 137.5
1 - River birch	1 x 175 = 175	10% Species Diversity = 55 sq. ft.
1 - Red oak	1 x 175 = 175	25% Energy Conservation (one Red Oak)
1- Fringe tree	1 x 100 = 100	= 43.75 sq. ft.
	550 sq. ft. +	236.25 sq. ft.

Tree Canopy Coverage Provided = 786.25 sq. ft.

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RECOMMENDED TREES & 10 – YEAR CANOPY COVERAGE GROUPS

Group I - Canopy Coverage 100 sq. ft

Deciduous / Small Tree: Minimum size at planting 1 ¾" caliper, balled & burlapped.

Common Name	Botanical Name	Moisture Needs / Exposure	* 10 Year Coverage sq. ft.
Red buckeye	*Aesculus pavia*	Moist to average Part sun to full sun	100
Downey serviceberry	*Amelanchier arborea*	Average Part sun to full sun	100
Canada serviceberry	*Amelanchier candensis*	Moist to average Full sun	100
Allegany serviceberry	*Amelanchier laevis*	Average to dry Part sun to full sun	100
Pawpaw	*Asimina triloba*	Moist to average Full shade to part sun	100
American hornbeam	*Carpinus caroliniana*	Moist to average Full shade to part sun	100
Red bud	*Cercis canadensis*	Average to dry Full to part shade	100
Fringe tree	*Chioanthus virginicus*	Moist to average Part shade to full sun	100
Cockspur Hawthorn	*Crataegus crusgalli*	Moist to dry Full shade to part shade	100
Southern Hawthorn	*Crataegus viridis*	Moist to average Full shade to part shade	100
Persimmon	*Diospyros virginiana*	Average to dry Full shade to part shade	100
Common Silverbell	*Halesia teraptera*	Moist to average Part sun to full sun	100
Sweetbay Magnolia	*Magnolia virginana*	Moist to dry Full shade to part sun	100
Eastern Hornbeam	*Ostrya virginiana*	Moist to average Part sun to shade	100
Sourwood	*Oxydendron arboreum*	Moist Part shade to full shade	100
Sassafrass	*Sassafrass albidum*	Moist to average Part shade to full sun	100

Group II - Canopy Coverage 125 sq. ft Deciduous / Large Tree: Minimum size at planting 2- 2 ½" caliper, balled & burlapped. Do not plant closer than fifteen (15) feet from buildings.			
Common Name	**Botanical Name**	**Moisture Needs / Exposure**	**10 Year Coverage (sq. ft.)**
Shagbark Hickory	*Carya ovata*	Moist Full sun	125
American yellowwood	*Cladrastis kentukea*	Moist to average Full sun	125
American beech	*Fagus grandifolia*	Average Shade to full sun	125
Green ash 'Summit' and 'Patmore' cult.	*Fraxinus pennsylvanica*	Moist to average Full sun	125
Kentucky coffee tree	*Gymnocladus dioicus*	Average Full sun	125
Southern Magnolia	*Magnolia grandiflora*	Moist to average Part shade to full sun	125
Black Walnut	*Juglans nigra*	Moist Full sun	125
Blackgum	*Nyssa sylvatica*	Moist to dry Part sun to full sun	125
White oak	*Quercus alba*	Moist to average Part shade to full sun	125
Swamp white oak	*Quercus bicolor*	Moist to average Part shade to full sun	125
Scarlet oak	*Quercus coccinea*	Average Full sun	125
Willow oak	*Quercus phellos*	Moist to average Full sun	125
Chestnut Oak	*Quercus prinus*	Average to dry Part shade to full sun	125
Black Willow	*Salix nigra*	Moist Part shade to full sun	125
Group III - Canopy Coverage 175 sq. ft Deciduous / Large Tree: Minimum size at planting 2- 2 ½" caliper balled & burlapped. Do not plant closer than fifteen (15) feet from buildings.			
Red maple	*Acer rubrum*	Moist to average Part shade to full sun	175
Sugar maple	*Acer saccharum*	Moist to average Part shade to full sun	175
River birch	*Betula nigra*	Moist to average Part shade to full sun	175
Honey locust 'Skyline' and 'Shademaster' cult.	*Gleditisia tricanthos var. inermis*	Average Part shade to full sun	175
Sweetgum	*Liquidamber styraciflua*	Average Full sun	175
Tulip poplar	*Liriodendron tulipifera*	Average Full sun	175
London planetree	Platanus x acerfolia	Full Sun	175

Chinkapin oak	*Quercus muehlenbergii*	Full sun	175
Pin Oak	Quercus palustris	Moist to average Full sun	175
Northern red oak	*Quercus rubra*	Average Full sun	175
American basswood	*Tillia americana*	Moist to average Part shade to full sun	175
American elm cultivars resistant to Dutch elm disease: 'Princeton', 'New Harmony', Valley Forge'	*Ulmus americana*	Moist to average Full sun	175
Group IV - Canopy Coverage <u>100 sq. ft</u> Evergreen Tree: Minimum size at planting 2- 2 ½" caliper, balled & burlapped.			
Pitch Pine	Pinus rigida	Well drained soil Full sun	100
Loblolly Pine	Pinus taeda	Well drained soil Full sun	100
Virginia Pine	Pinus virginiana	Well drained soil Full sun	100
Group V - Canopy Coverage <u>25 sq. ft</u> Evergreen Tree: Minimum size at planting 6 -7 ft, balled & burlapped.			
Atlantic White Cedar	Chamaecyparis thyoides	Moist to average Full sun	25
American Holly	Ilex opaca	Moist to average Part shade to full sun	25
Eastern Red Cedar	Juniperus virginiana	Moist to dry Part shade to full sun	25
Eastern Arborvitae	Thuja occidentalis	Moist to dry Full sun	25

Source: Adapted from the Virginia Nursery & Landscape Association. *Trees that were not included in the VNLA list are grouped with other trees of similar form and growth rate.*

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VEGETATION NOT RECOMMENDED TO PLANT OR PRESERVE*

Common Name	Botanical Name	Problems	Comments on Preservation*	Alternatives to Plant
Box elder	*Acer negundo*	Weak wood, short life span, can develop box elder bug - a nuisance if tree is located near dwelling	Do preserve this tree in its natural habitat along stream banks	River birch, American hornbeam
Norway maple	*Acer platanoides*	Prolific seeds, dense canopy	Do not preserve in the RPA.	Tupelo, White oak, Red oak, Willow oak
Silver maple	*Acer saccharinum*	Objectionable surface root system, prolific seeds, weak wood	Do preserve this tree in its natural habitat along stream banks	Tupelo (black gum) or Willow oak
Tree of Heaven	*Ailanthus altissima*	**Highly invasive** and difficult to eradicate once established, weak wood, and male seeds have a strong odor	Do not preserve	White oak, Willow oak, Red oak, Tupelo
Mimosa	*Albizia julibrissin*	**Invasive**, susceptible to wilt disease and mimosa webworm	Do not preserve	Eastern redbud, American fringe tree
White birch	*Betula pendula*	Short life span, susceptible to severe damage from the bronze birch borer	Do not preserve	River birch or 'Heritage'River birch
Leyland cypress	*X Cupressocyparis leylandii*	Short life span, susceptible to canker disease and prone to wind-throw	Do not preserve	Eastern Red cedar
Flowering dogwood	*Cornus florida*	Susceptible to exotic fungal diseases.	Do preserve if in good condition.	Sweet bay magnolia or Serviceberry
Russian Olive, Autumn Olive	*Eleagnus augustifolium, E. umbellatum,*	**Highly invasive**, diminishing the overall quality of wildlife habitat	Do not preserve	Black haw Viburnum, Serviceberry, Red Chokeberry.
Ash species	*Fraxinus sp.*	Susceptible to Emerald Ash Borer	Do not preserve unless treated yearly for EAB	London Plane tree
Ginko (female only)	*Ginko biloba (female)*	Fruit of female can produce objectionable odor	Determine if objectionable fruit **can** be tolerated	White oak, Willow oak, Red oak, Tupelo
Common Name	**Botanical Name**	**Problems**	**Comments on Preservation***	**Alternatives to Plant**
Osage orange (female only)	*Maclura pomifera (female)*	Large prolific fruit, thorns, shallow roots; thornless male varieties may prove more acceptable near a residence	Do preserve if in an area where fruit and thorns can be tolerated	Paw paw

White mulberry	*Morus alba*	**Highly invasive** and produces messy fruit.	Do not save this tree	Sweet bay magnolia, Fringetree
Empress tree	*Paulownia tomentosa*	**Invasive**, weak wood, prolific seeds	Do not save this tree	Eastern redbud
Amur corktree (female only)	*Phellodendron ameurense* (female)	**Highly invasive**, prolific seeds, use only male varieties	Do not save female trees	American yellowwood, Hophornbeam
Spruce	*Picea spp*	Susceptibility to mites will require maintenance spraying to maintain tree in good condition throughout life	Determine if maintenance requirements can be tolerated	American holly, Eastern red cedar
Austrian pine	*Pinus nigra*	Susceptibility to a fungal disease that will require fungicidal spraying	Determine if maintenance requirements can be tolerated	Virginia cedar, American holly, Loblolly pine
White pine	*Pinus storbus*	Short life span, weak wood and susceptible to storm damage	Determine if objections noted can be tolerated	Virginia cedar, Loblolly pine
Poplars (not to be confused with "tulip poplars" or "tulip tree"	*Populus* spp. (to include hybrid poplar)	Short life span, objectionable root system, weak wood susceptible to canker disease	Do not save this tree	Willow oak, red oak, tulip tree
Cherry (edible and ornamental)	*Prunus avium*, *P. cerasus*, Japanese species and hubrids	Displaces our native fruit trees on which our wildlife is dependent	Do not save this tree	Trees for flowering: Redbud, Serviceberry, Fringe tree, Sweet bay magnolia; trees for edible fruit: Pawpaw, Persimmon, Serviceberry
'Bradford' pear and other ornamental pears	*Pyrus calleryana* 'Bradford' and other ornamental pears	**Invasive** (overtaking native trees and other native plants in our woodland) highly susceptible to storm damage, and short life span	Do not save this tree	Sweet bay magnolia, Serviceberry, American fringe tree, Silverbell
Sawtooth oak	*Quercus acutissima*	**Invasive** – this Asian tree displaces our indigenous forest trees	Do not save this tree	Willow oak, White oak, Red oak
Common Name	**Botanical Name**	**Problems**	**Comments on Preservation***	**Alternatives to Plant**
Weeping willow	*Salix babylonica*	Short life span, weak wood, objectionable root system in yards	Determine if objections noted can be tolerated	River birch, h Hophornbeam, American hornbeam

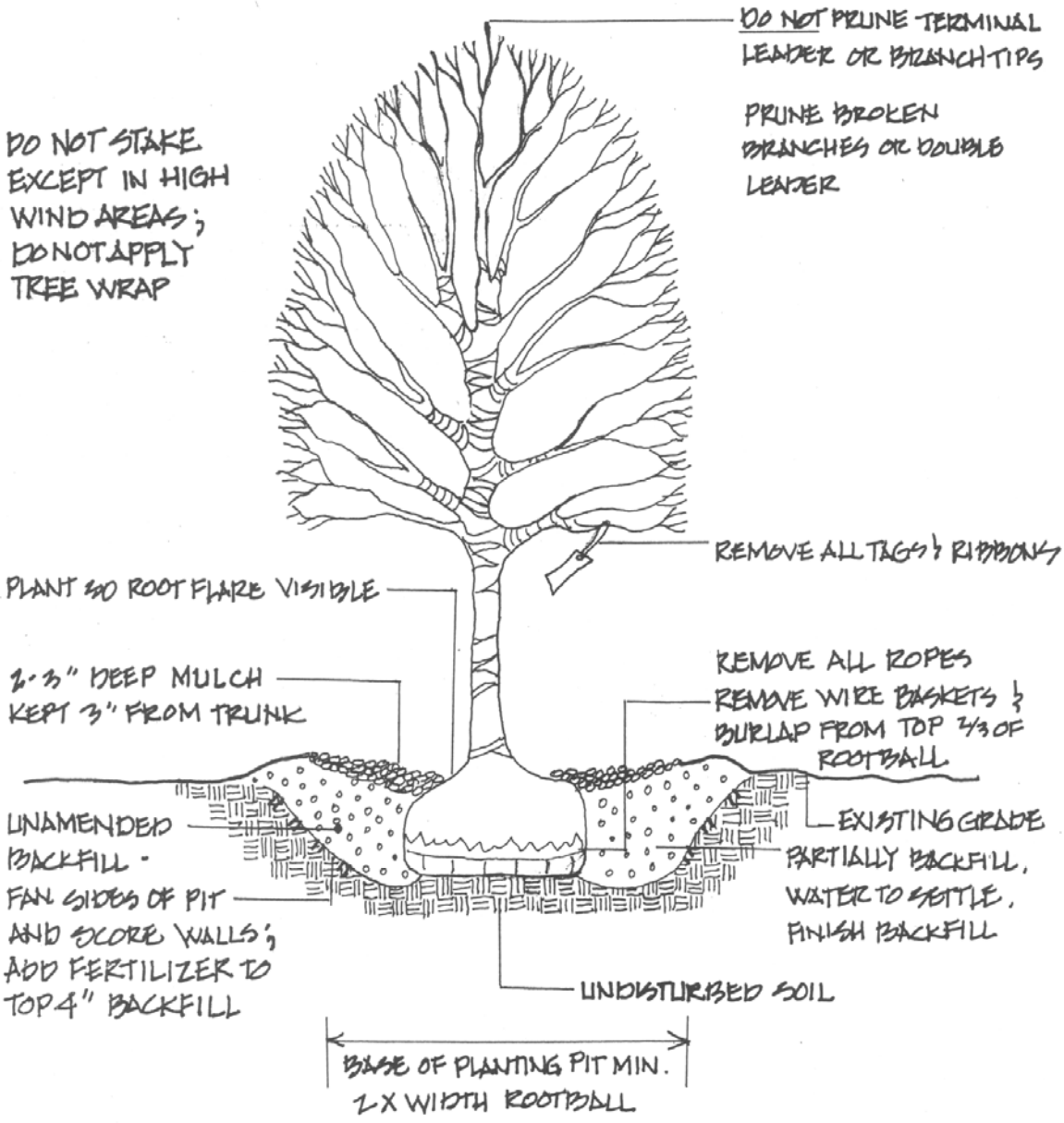
Canadian hemlock	*Tusga canadensis*	Susceptible to insect problems that will require spraying to maintain	Determine if maintenance needs can be met	American holly
American elm	*Ulmus americana*	Susceptible to Dutch elm disease (DED), elm necrosis and various insect infestations	Determine if problems can be tolerated	American elm cultivars resistant to Dutch elm disease: 'Princeton', 'New Harmony', Valley Forge'
Siberian elm	*Ulmus pumilla*	Short life span, weak wood, susceptible to various insect and disease problems	Do not save this tree	See American elm cultivars above or use slippery elm in damp soils

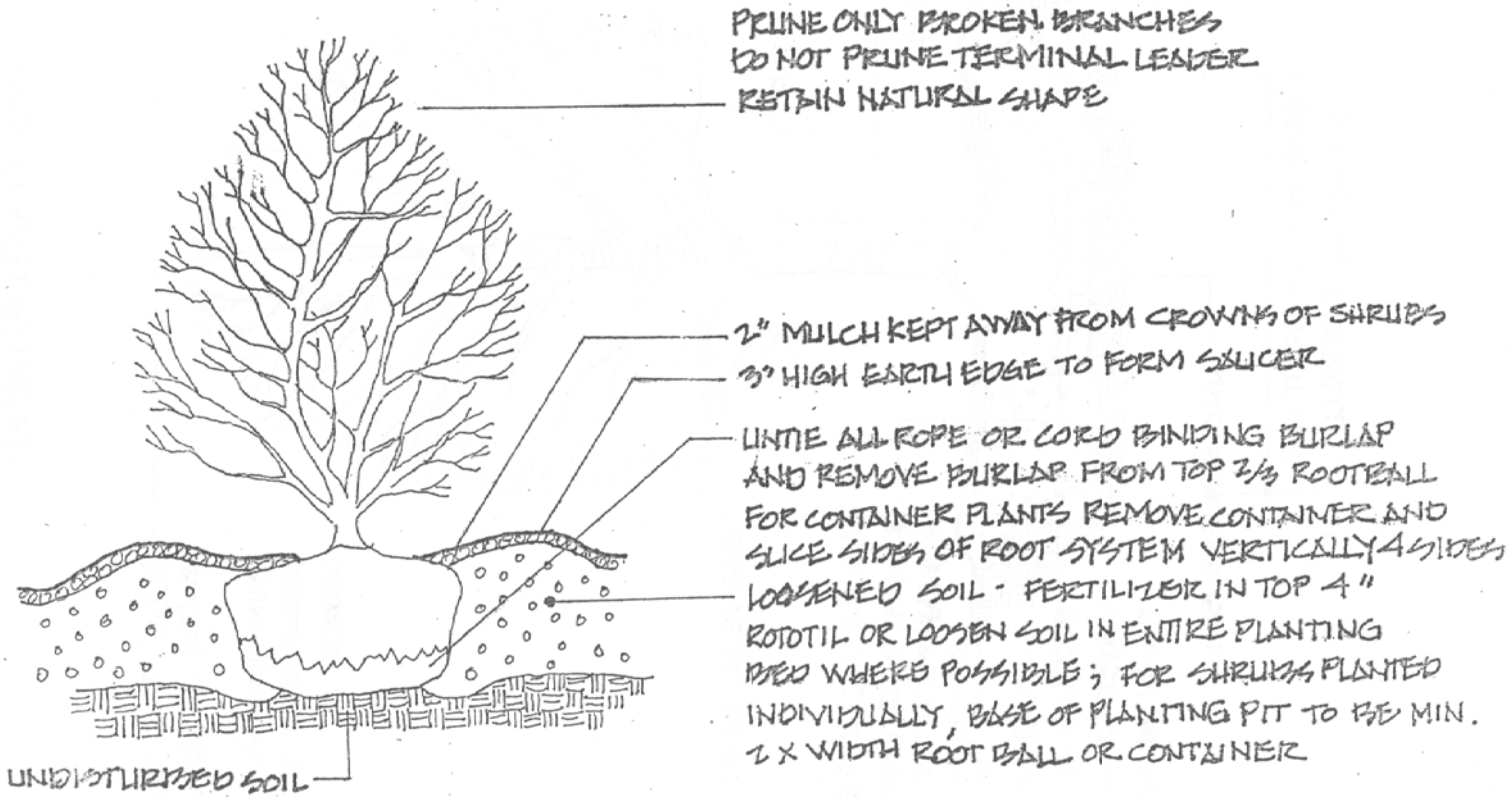
Sources for the information in this chart include: *The Fairfax Co. Public Facilities Manual, Virginia Dept. of Conservation and Recreation: Natural Heritage Program* and the *Maryland Native Plant Society's Invasive Non-Native Plants*; this information was complied by the Urban Forestry Division / Public Works.

Note: Some of the plants in this list are highly invasive and can cause harm to our native ecosystem while others have nuisance factors that could be problematic to property owners in ways indicated above. In selecting plants to for your property we strongly recommend "native" plants, those that occur naturally in our region. These "natives" support our diminishing population of songbirds, butterflies and beneficial/pollinating insects, as well as providing the most long-lived and least problematic plants for your property.

DETAILS AND SPECIFICATIONS
TO BE INCLUDED ON GRADING PLANS

TREE PLANTING DETAIL





TYPICAL SHRUB PLANTING

TREE PRESERVATION TECHNIQUES
(Both techniques described below can be combined with the pruning of roots that may occur beyond the area of treatment).

#1 – For Use in Areas Where Equipment Must Operate in Areas That Will Remain at Existing Grade:

- In the woodchip and plywood or chainlink fence area shown in figure 1 below, spread 10-15" of wood chips by hand.
- On top of the wood chips, lay 5/8 to ¾ inch plywood or heavy-gauge chain link fence to provide a path for equipment and workers to operate.

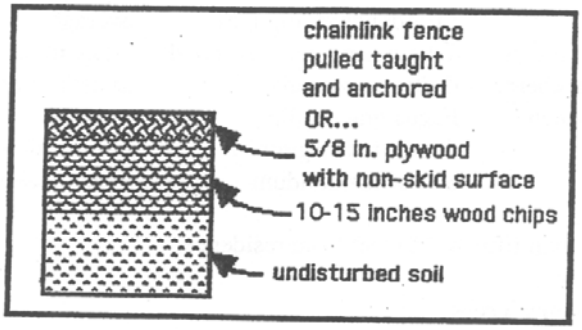


Figure 1

#2 – For Use in Areas Where Fill Soil Will Be Placed Over the Root Zone:

- An aeration system shall be installed in the area shown in figure 2 below prior to grading. The aeration system (see diagram below) shall consist of *geotextile* fabric laid on top of the undisturbed ground; with not less than six inches of river rock on top of it; and with a second layer of *geotextile* fabric laid on top of the rock.
- Fill dirt can then be placed on top of the *geotextile* fabric.

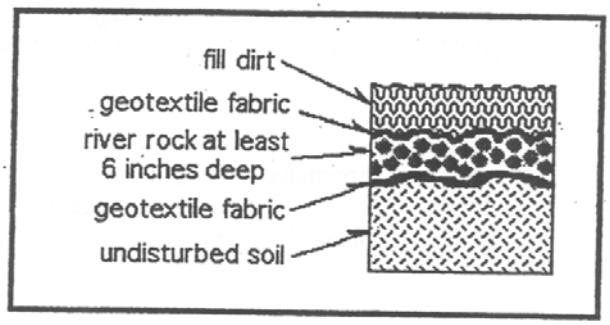


Figure 2

TREE PRESERVATION PROCEDURES AND SPECIFICATIONS
City of Falls Church, VA – Urban Forestry / Public Works

1. Prior to allowing any vehicle or construction equipment to enter the site, the construction foreman and project arborist (also foreman of company doing actual tree work if different from project arborist) is to meet the City Arborist to mark the location of the *limits of clearing/ tree preservation fencing*, erosion control fabric, and root pruning line (where required), access routes, storage areas, and parking areas. The location of the LIMITS OF CLEARING/TREE PRESERVATION FENCING is to be installed in accordance with the approved plan and field located from existing benchmarks, landmarks, and building stakeout survey markers. All work procedures and tree preservation measures are to be discussed at this time. An appointment must be made with the arborist for the City a minimum of three days prior to the establishment of the tree preservation measures is required by City Code Sec. 35-17 Contact the City Arborist for an appointment at 703-248-5183.

2. Trees to be removed shall be clearly marked and approved by the City Arborist prior to demolition or entry of any equipment on site. A tree contractor licensed and bonded to work in the City shall perform all tree work, including all tree removals. Check with the City Arborist for a copy of the most recent list of Tree Contractors.

3. *Tree preservation fencing* shall be either of the following:

   a. Six (6) foot high chain link fence sections attached to one and five eights (1 5/8) inch outside diameter pipe with eleven (11) -gauge mesh in a two (2) inch diamond pattern.
   or
   b. Four (4) foot high fourteen (14) gauge welded wire fence supported by six (6) foot long metal stakes (2" width) to be spaced eight (8) feet on center and sunk into the ground.
   or
   c. Super Silt fence

   Both of the fencing types noted above shall be flagged with brightly colored surveyor ribbon to improve their visibility. The contractor must maintain fencing in place throughout construction. **In the event fencing must be temporarily removed for any reason, contact must be made first with the arborist at 703-248-5183**. The City Arborist must grant approval before any tree preservation fencing is removed, even temporarily.

4. Erosion and sediment control fencing shall be placed on the inside (toward construction) from the tree preservation fencing and any root-pruning trenches.
   Erosion control devices such as silt fencing, debris basins, and water diversion structures shall be installed to prevent siltation and/or erosion within the tree protection zone.
   Property owners are advised to impose fines in contracts with construction companies if tree preservation measures are violated.

5. Demolition and Site Clearing**:**

   a. The City Arborist shall be notified a minimum of three (3) days in advance of commencing any form of tree work. Call 703-248-5183 for an appointment.
   b. Trees to be removed shall be felled so as to fall away from tree protection zones and to avoid pulling breaking of roots of trees to remain. If roots are entwined, the consultant may require first severing the major woody root mass before extracting the trees. This may be accomplished by cutting through the roots by hand, with a vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.
   c. Trees being cut within the tree preservation zone shall be cut near ground level and the stumps ground out with a walk-behind grinding machine.
   d. All downed brush and trees shall be removed from the tree protection zone either by hand or with equipment sitting outside the tree protection zone. Extraction shall occur by lifting the material out, not by skidding it across the ground.
   e. Brush may be chipped and placed in the tree protection zone to a maximum depth of 6 inches, with no chips against the trunks of trees.

f. Structures and underground features to be removed within the tree protection zone shall use the smallest equipment possible and operate from outside the tree protection zone. The City Arborist shall be present during all such operations within the tree protection zone to monitor demolition activity. Phone 703-248-5183 at least three (3) days in advance for an appointment.
g. Any damage to trees due to demolition activities shall be reported to the City Arborist within 6 hours so that prompt remedial action can be taken.
h. If temporary haul or access roads must pass over the root area of trees to be retained, a roadbed of at least 10 inches of mulch shall be created to protect the soil. The roadbed material shall be replenished as necessary to maintain a10-inch depth. The City Arborist must approve the use of any such temporary road in the tree protection area.

6. Pruning & Other Preservation Measures Specifications:
a. The City Arborist shall be notified a minimum of three (3) days in advance of commencing any form of tree work. Call 703-248-5183 for an appointment.
b. Root pruning, where required, shall be mechanically done with a narrow trencher with sharp blades. Once a trench is opened up, approximately 18-24" in depth and 4" wide all exposed roots will be hand pruned so that the clean-cut ends can regrow.
The tree preservation fencing shall be placed 6-12" outside the root-pruning trench (construction side of the trench). The erosion and sediment fencing shall be placed outside the tree preservation fencing (construction side of the fence).
c. All trees to be saved will be pruned (in accordance with American National Standards Institute (ANSI) Standard Practices for Trees, Shrubs, and Other Woody Plan Maintenance ANSI A300 and adhere to the most recent edition of ANSI Z133.1.
d. Treat any disease or insect pest as required to reduce stress on trees.
e. Remove all invasive vines growing on trees and from the area around the trees
f. Specifications for work to be performed on individual trees shall be indicated under the "maintenance" column of the Tree Survey.
g. All trees within the project area shall be pruned to:
- clear the crown of diseased, crossing, weak, and dead wood to a minimum size of 1 ½ inches diameter;
- provide 14 feet of vertical clearance over streets and 8 feet over sidewalks;
- remove stubs, cutting outside the woundwood tissue that has formed around the branch;
- reduce end weight on heavy, horizontal branches selectively removing small diameter branches, no greater than 2 to 3 inches near the ends of the scaffolds.

h. Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. The City Arborist must approve such tying.
i. Pruning shall not be performed during periods of flight of adult boring insects because fresh wound attract pests. Pruning shall be performed only when the danger of infestation is past.
j. All work must be performed by a tree contractor licensed and bonded to work in the City and in accordance with the direction of the project certified arborist and the City Arborist.
k. Interior branches shall not be stripped out; also known as lions tailing.
l. Pruning cuts larger than 4 inches in diameter, except for dead wood, shall be avoided.
m. Pruning cuts that expose heartwood shall be avoided whenever possible.
n. No more than 20 percent of live foliage shall be removed from a tree at on time.
o. While in the tree, the arborist shall perform an aerial inspection to identify defects that require treatment. Any addition work needed shall be reported to the City Arborist.
p. Brush may be chipped and chips may be spread underneath trees within the tree protection zone to a maximum depth of 6 inches, leaving the trunk and root flare clear of chips.
q. It may also be necessary to fertilize, aerate and otherwise treat the "trees to be saved" as required by the arborist for the City, following a meeting with the owner's/developer's arborist and approval of the "tree preservation plan". <u>All tree work must be completed prior to construction.</u>
r. 'Selective clearing' in wooded areas will be allowed only under the direction of the City Arborist. Trees to be removed will be felled by hand so that minimal damage is done to "trees to be saved".
s. No vehicles or storage of materials of any kind will be allowed inside the limits of clearing. No storage of material or debris will be allowed within the "tree save area".

7. Construction Specifications:
    a. Have a licensed and bonded tree contractor remove torn, hazardous, or prominent deadwood as it occurs, using ANSI standards noted under # 4 above. .
    c. Where construction traffic must occur in the area of tree roots it shall be necessary to apply the following procedure: cover undisturbed soil with 10-15 inches wood chips and topped with chain link fence pulled taught and anchored or topped with 5/8 to 3/4 inch plywood with non-skid surface.
    d. Where compaction occurs during construction, vertical mulch with good quality compost.
    e. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, relevant trees shall be root pruned 1 foot outside the tree protection zone by cutting all roots cleanly to a depth of 24 inches to the maximum depth of root penetration, (usually 3 feet). Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, narrow trencher with sharp blades, or other approved root-pruning equipment. Pruned roots shall be promptly covered with soil.
    f. Any roots damaged during grading or construction shall be exposed to sound tissue and cut leanly with a saw and promptly covered with moist soil.
    g. Soil from trenches, basements or other excavations shall not be placed within the tree protection zone, either temporarily or permanently. Soil stockpiles should be placed only in previously designated areas. No vehicles or construction equipment shall be parked in the tree protection zone.
    h. A copy of the "approved plan" and TREE PRESERVATION PROCEDURES AND SPECIFICATIONS must be maintained on site at all times.
    i. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree(s) with the approval of the City Arborist.
    j. A licensed and bonded tree contractor must perform additional tree pruning required for clearance during construction under the direction of the City Arborist. Construction workers shall not be allowed to prune trees.
    k. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.
    l. If injury should occur to any tree during construction, it should be treated as soon as possible under the direction of the City Arborist.
    m. The City Arborist must monitor any grading, construction, demolition, or other work that is expected to encounter tree roots.

8. The planting of the new tree(s) specified on the plan shall take place after the completion of construction. The City Arborist must inspect the trees prior to planting (see Arborist Notification) and also inspect the placement and installation of the tree(s). All products and workmanship related to the planting of the tree(s) must be in accordance with the **Tree Planting Specifications**. The Contractor/Owner must present the City with a copy of a one-year guarantee from the landscape contractor for the newly planted tree(s). The tree will need to be thriving and in good condition one year from the date of planting or will need to be replaced.

If you have questions on any of the "procedures" or "specifications" noted above or concerns that may arise during construction, please contact the City Arborist at (703) 248-5183

SPECIFICATIONS FOR PLANTING
City of Falls Church, VA – Urban Forestry / Development Services

1. Contractor shall verify existing conditions and utility locations. The City Arborist prior to the planting must approve adjustments to locations of plant material due to field conditions. Any substitutions in plant material and sizes specified will not be accepted, unless approved by the City Arborist prior to installation.

2. All plant material shall conform the American Standard for Nursery, latest edition, published by the **American Nursery and Landscape Association**. All plants must be free from injury, insect infestations and disease. All plant material must be inspected by the City Arborist prior to planting. The Contractor shall phone at least three (3) days prior to installation for inspection of the material and for inspection of the planting operation.

3. All plant material must bear original nursery tags indicating the genus, species and if applicable, cultivars and variety. All tags shall be removed after the City Arborist has inspected the plant material.

4. Tree pits shall be a minimum of two (2) and a half (1/2) times the width of the root ball and no deeper than the height of the root ball. On balled and burlaped trees, remove pinning nails or rope lacing, then cut away the wrapping and then backfill. Remove the wire basket. Remove all rope, whether jute or nylon, from trunks. For container materials, remove the container completely. Select trees grown in containers with vertical ribs or a copper-treatment on the interior wall. If roots are circling around the root ball exterior of container plants (trees, shrubs or perennials) cut 1 inch to 2 inches of roots off the outer edge of the root ball. Container tree with multiple circling roots will be rejected. Place shrubs and perennials at the same depth they were in the containers. For bare root perennials plant with the soil even with the top of the crown. Dig the hole wide enough to allow the roots to spread out in the soil. Push the soil back into the hole over the roots and around the top of the plant.

5. Two (2) to three (3) inches of mulch shall be placed over the tree-planting pit, but shall be kept three (3) to four (4) inches away from the trunk of the tree or crowns of shrubs. Do not allow mulch to touch the trunks of trees or crowns of shrubs. Use mulch that is compatible with the type of plant used.

6. Trees shall be planted at the height of the surrounding grade with root flares visible. Should soil have been piled over the root flare during the digging process, this soil shall be removed so that the flare is slightly above grade.

7. Any pruning must be done with the approval of the City Arborist. Pruning at the time of planting shall be done only to remove broken branches or double (co dominant) leaders.

8. Remove tags and labels from trees and shrubs to prevent girdling branches and trunks.

9. Stakes shall be used only in area of high traffic or highly windy locations. A tree-staking diagram should be provided if staking is necessary. Stake for maximum of one year. Allow trees a slight amount of flex rather than holding them rigidly in place. Use guying or attaching that won't damage the bark. To prevent trunk girdling, remove all guying material after one year.

10. Planting Season – Planting shall be done only within the following dates:

    a. Deciduous Trees – March 15 to May 30 or September 15 to December 15 (oaks and black gum to be spring dug and planted only).
    b. Evergreen Trees – March 1 to May 15 or September 15 to November 15.

11. All plant material shall be guaranteed by the Contractor for one year from the date of acceptance to be in good, healthy and flourishing condition. In the event that a plant dies or in the judgment of the City Arborist, fails to flourish; the Contractor shall replace in accordance with the above noted specifications.

12. The Contractor shall be responsible for the maintenance of the plants during this one-year warranty period. This maintenance shall include providing water on a weekly basis when natural rainfall is less than one inch a week. Drip irrigation systems and water reservoir devices can facilitate watering. Root balls of trees should be slowly and thoroughly soaked at time of watering. For planting beds (i.e., trees, shrubs and perennials), water slowly and deeply putting down 1"-2" of water in a 6-12 hour period. This should give a penetration of 12-18" depth.

SHRUB PLANTING GUIDELINES FOR THE CITY OF FALLS CHURCH

***Shrubs may be planted for canopy coverage credit provided there is no space on the property (as determined by the Falls Church City Arborist) to plant a sufficient amount of trees to achieve the canopy coverage requirements. ***

13. Shrubs shall measure a minimum of two to three (2 – 3) feet in height at the time of installation and be either balled and burlapped (B&B) or in a minimum of a #3 container.
14. Canopy Coverage for Shrubs is credited at 20 square feet (4 feet by 5 feet) if they are spaced appropriately to achieve this size, otherwise a lower amount of canopy coverage credit shall be credited based on plant spacing.
15. Shrubs that are planted for canopy coverage credit shall not be planted under existing trees or new tree plantings that are being used for credit.
16. Shrubs shall be bonded according the bond form pricing schedule.
17. The Falls Church Shrub planting detail shall be added to any grading plan that includes shrub plantings for canopy coverage credit.

NATIVE SHRUBS
ACCEPTABLE FOR CANOPY COVERAGE

*		*Aesculus parviflora*	Bottlebrush Buckeye
+		*Alnus serrulata*	Smooth Alder
+		*Aronia arbutifolia*	Red Chokeberry
*		*Calycanthus florida*	Sweetshrub
+	*	*Cephalanthus occidentalis*	Button Bush
+		*Clethra alnifolia*	Summersweet
*		*Comptonia peregrina*	Sweetfern
+		*Cornus amonum*	Silky Dogwood
*		*Cornus racemosa*	Grey Dogwood
+		*Cornus sericea*	Red-Stem Dogwood
*		*Corylus americana*	American Hazelnut
*		*Hamamelis virginiana*	Witch Hazel
*		*Hydrangea arborescens*	Smooth Hydrangea
+		*Hypericum kalmianum*	St. John's Wort
+		*Ilex glabra*	Inkberry
+		*Ilex verticillata*	Winterberry
+		*Itea virginica*	Virginia Sweetspire
*		*Kalmia latifolia*	Mountain Laurel
*		*Lindera benzoin*	Spice Bush
+		*Morella (Myrica) pennsylvanica*	Northern Bayberry
*		*Photinia (Aronia) melanocarpa*	Black Chokeberry
*		*Photinia pyrifolia (Aronia arbutifolia)*	Red Chokeberry
*		*Rhododendron maximum*	Rosebay Rhododendron
+		*Rhododendron viscosum*	Swamp Azalea
*		*Rhus copallina*	Winged Sumac
*		*Rhus glabra*	Smooth Sumac
*		*Rhus hirta (Rhus typhina)*	Staghorn Sumac
+		*Salix sericea*	Silky Willow
*		*Sambucus canadensis*	Elderberry
*		*Staphylea trifolia*	American Bladdernut
*	+	*Vaccinium corymbosum*	Highbush Blueberry
*		*Viburnum acerifolium*	Maple-leaved Viburnum
*	+	*Viburnum dentatum*	Arrow Wood
*	+	*Viburnum nudum v. cassinioides*	Witherod
*	+	*Viburnum nudum*	Possum-haw Viburnum
*		*Viburnum lentago*	Nannyberry
*		*Viburnum prunifolia*	Blackhaw Viburnum
*		*Viburnum trilobum*	American Cranberry

* *Suitable for usually well drained*
\+ *Suitable for moist areas*

ARBORIST NOTIFICATION AND VERIFICATION:

PRIOR TO THE SIGN OFF AND SUBSEQUENT RELEASE OF THE GRADING PLAN ALL PRESERVATION MEASURES REQUIRED, AS PART OF THE *LANDSCAPE CONSERVATION PLAN*, MUST BE INSPECTED AND APPROVED BY THE CITY OF FALLS CHURCH ARBORIST. THIS MAY INCLUDE BUT IS NOT LIMITED TO TREE WORK, FENCING, MULCHING AND ROOT PRUNING. VIOLATIONS OF THE *LANDSCAPE CONSERVATION PLAN* SHALL RESULT IN FINES, STOP WORK ORDERS AND/OR THE RESUBMISSION OF A "MITIGATION PLAN".

THE REQUIRED REPLACEMENT VEGETATION SHALL BE INSPECTED PRIOR TO PLANTING BY THE CITY ARBORIST. VEGETATION THAT IS INSTALLED UN INSPECTED WILL BE REJECTED. TO ARRANGE AN APPOINTMENT CALL THE ARBORIST AT 703-248-5183.

CITY OF FALLS CHURCH

BONDING INFORMATION
DOCUMENTS AND FORMS

BONDING INFORMATION / INSPECTIONS
Grading Plans

*Applicants must submit funds to the City when their grading plan requires the posting of a **New Landscape Elements Bond** and/or **Existing Tree Preservation Bond.** Also, a **Verification of Tree Preservation Measures Inspection** is required to ensure protection of existing vegetation.*

All bonds are required **prior** to the sign off and approval of grading plans. Bond requirements have been established by ordinance of the City Council. The first $2,000.00 of all bonds is posted by check /cash to the City. Checks are to be made payable to the City of Falls. Information and forms have been included to aid in the acceptable methods of posting the bonds that are in excess of $2,000.00.

1. The **New Landscape Elements Bond Agreement and Plan** is to ensure the installation and planting of all vegetation material shown on the plan for landscaping. For residential grading plans, bonds for trees and shrubs are priced per the bond estimate form. **Sec. 44-136 "Purpose and amount of bond"** explains how the bond is administered and released. Generally, once the vegetation has been planted, inspected and approved by the Arborist or Urban Forester, it is one (1) year from this date that the bond is held. Throughout that one-year holding period, if the vegetation declines or dies it is required to be replaced. At the end of the one-year the applicant must notify the Arborist, in writing, requesting final release of the bond.

2. The **Tree Preservation Bond Agreement and Plan** is required for the protection of City owned street and park trees, specimen, historic, and memorial trees. These types of trees are protected under **Sec. 44 "Vegetation**" of the Falls Church City Code. Also, a **Tree Preservation Bond** can be required when there is a violation of the approved **Landscape Conservation Plan**. This purpose of this bond is to ensure that funding will be available to mitigate the damage that was done to existing vegetation.

Sec. 44-139 "Procedure for administration of bond and terms of bond" explains how the bond is released. Generally, one –half of the bond is released at the end of construction. It is from this date that the remaining part of the bond is held for two (2) years.

3. The **Verification of Tree Preservation Measures** is an inspection performed by the Arborist or Urban Forester **after** grading plan approval but **prior** to the release of permit(s). Tree preservation measures such as root pruning and fence installation that are required as part of the grading plan are to be installed and inspected prior to the entrance of equipment to the site.

Sec. 44-136. - Purpose and amount of bond.

Prior to approval of the plan required by this article and prior to the issuance of building and development permits, there shall be executed by the owner or the owner's agent, and submitted with the plans, an agreement to establish the measures provided for on the plans for the protection of existing trees, together with a cash bond, to be deposited in an interest bearing escrow account upon which the city may draw, in accordance with the agreement, in an amount equal to the total replacement cost of the protected trees plus the cost of the measures required by the agreement for the protection of the trees. Deposit of such funds shall be in a qualified security or insured savings account and any interest earned shall be credited to the owner or agent. The agreement and bond shall be provided for the installation, maintenance and performance of these protective measures and to ensure the repair and replacement, if necessary, of the protected existing trees.

(Code 1982, § 35-15(a); Ord. No. 811; Ord. No. 953; Ord. No. 1042, 3-28-1983; Ord. No. 1236, 9-13-1988; Ord. No. 1659, 10-25-1999)

Sec. 44-139. - Procedure for administration of bond and terms of bond.

(a) The agreement and the plan shall describe the kind of measures to be taken and the materials to be used to protect the trees from the stress of construction. The owner or the agent of the owner shall notify the city arborist in writing at least three days prior to the installation of the protective measures. The arborist shall then inspect the measures after they are installed to ensure they meet the requirements set out in the agreement. The arborist shall notify the owner or the owner's agent in writing when the inspection is complete as to whether or not compliance has been achieved. No construction activities, which include, but are not limited to, the placement of heavy equipment on the site, excavations, earth movement, or erection of any structures, shall be done by the owner or the agent of the owner until the arborist has determined that the measures have been installed according to the agreement. These measures shall remain in place and shall not be modified until all construction on the real estate covered by the agreement is completed. The arborist shall inspect the area for compliance from time to time. The agreement may be amended only by a written instrument and only upon the consent of the arborist.

(b) The owner or the agent of the owner shall notify the arborist in writing when all construction on the real estate covered by the agreement is completed. The arborist shall then inspect the area and, upon determining that all construction in that area is completed, the arborist shall notify the owner or the owner's agent in writing that the protective measures may be removed. No additional construction shall take place on the real estate subject to the agreement after the protective measures have been removed unless the written approval of the arborist is obtained. Approval shall be given upon a determination that the construction will not damage the protected trees. The arborist shall also inspect the trees at this time to determine what damage, if any, has been caused by the stress of construction, as that term is defined in the handbook in the subsection entitled Stresses of Construction. The arborist shall also notify the owner or the owner's agent in writing if any trees must be repaired or replaced because of damage caused by the stress of the construction or shall refund half of the bond if no repairs or replacements are needed. Upon notification by the arborist that repairs or replacements are to be made, the owner or the agent of the owner shall make the required repairs and replacements and shall notify the arborist when the repairs and replacements are complete. The arborist shall inspect the repairs and replacement and shall notify the owner when it is determined that the required repairs and replacements have been adequately performed. One-half of the bond shall then be refunded.

(c) The remaining one-half of the bond shall be held for a period of two years from the date of the arborist's notification to the owner that the required repairs or replacement have been completed. The purpose of retaining this portion of the bond is to ensure trees which are damaged by construction, but where the injury becomes apparent only after construction is completed, will be repaired or replaced. At the end of this two-year period, the owner or the owner's agent may apply to the city arborist in writing for a discharge of the unexpended or unobligated portion of such bond. If the protected trees have survived in good health based upon the guidelines set out in the handbook in the section entitled Tree Preservation and Protection, the arborist shall release the bond within 30 days of receipt of the application. The bond shall not be discharged until all required repairs and replacements have been made.

(Code 1982, § 35-15(b)—(d); Ord. No. 811; Ord. No. 953; Ord. No. 1042, 3-28-1983; Ord. No. 1236, 9-13-1988; Ord. No. 1659, 10-25-1999)